

Amendments To The Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of claims:

48. (canceled) The hybrid enzyme having a peptide comprising at least 6 or more sequential amino acid residues selected from the amino acid sequence of SEQ ID NO: 1, introduced into a specific position of a glucose-6-phosphate dehydrogenase by insertion or substitution, in which the specific position is at least one position selected from the group consisting of the position between 294-295, between 302-310, between 362-363, the N-terminal and the C-terminal of the amino acid sequence of glucose-6-phosphate dehydrogenase represented by SEQ ID NO: 6.

49. (canceled) The hybrid enzyme having a peptide selected from the peptides having the amino acid sequences of SEQ ID NO: 2 though SEQ ID NO: 5, introduced into a specific position of a glucose-6-phosphate dehydrogenase by insertion or substitution, in which the specific position is at least one position selected from the group consisting of the position between 294-295, between 302-310, between 362-363, the N-terminal and the C-terminal of the amino acid sequence of glucose-6-phosphate dehydrogenase represented by SEQ ID NO: 6.

50. (canceled) The hybrid enzyme having a peptide which has the amino acid sequence of SEQ ID NO: 46, introduced into a specific position of a glucose-6-phosphate dehydrogenase by insertion or substitution, in which the specific position is at least one position selected from the group consisting of the position between 294-295, between 302-310, between 362-363, the N-terminal and the C-terminal of the amino acid sequence of glucose-6-phosphate dehydrogenase represented by SEQ ID NO: 6.

51. (canceled) The hybrid enzyme having a peptide which has the amino acid sequence of SEQ ID NO: 50, introduced into a specific position of a glucose-6-phosphate dehydrogenase by insertion or substitution, in which the specific position is at least one position selected from the group consisting of the position between 294-295, between 302-310, between 362-363, the N-terminal and the C-terminal of the amino acid sequence of glucose-6-phosphate dehydrogenase represented by SEQ ID NO: 6.

52. (new) An isolated and genetically modified hybrid glucose-6-phosphate dehydrogenase (G6PDH) comprising the amino acid sequence of SEQ ID NO: 6 wherein the hybrid G6PDH is modified to have a peptide inserted into at least one specific position from the group consisting of the position between amino acid residues 294-295, between amino acid residues 302-310, between amino acid residues 362-363, the N-terminal and the C-terminal; and wherein said peptide consists of at least 6 amino acid residues of the amino acid sequence of SEQ ID NO: 1.

53. (new) An isolated and genetically modified hybrid glucose-6-phosphate dehydrogenase (G6PDH) comprising the amino acid sequence of SEQ ID NO: 6 wherein the hybrid G6PDH is modified to have a peptide inserted into at least one specific position from the group consisting of the position between amino acid residues 294-295, between amino acid residues 302-310, between amino acid residues 362-363, the N-terminal and the C-terminal; and wherein said peptide consists of at least 6 amino acid residues of the amino acid sequence of SEQ ID NO: 2.

54. (new) An isolated and genetically modified hybrid glucose-6-phosphate dehydrogenase (G6PDH) comprising the amino acid sequence of SEQ ID NO: 6 wherein the hybrid G6PDH is modified to have a peptide inserted into at least one specific position from the group consisting of the position between amino acid residues 294-295, between amino acid residues 302-310, between amino acid residues 362-363, the N-terminal and the C-terminal; and wherein said peptide consists of at least 6 amino acid residues of the amino acid sequence of SEQ ID NO: 3.

55. (new) An isolated and genetically modified hybrid glucose-6-phosphate dehydrogenase (G6PDH) comprising the amino acid sequence of SEQ ID NO: 6 wherein the hybrid G6PDH is modified to have a peptide inserted into at least one specific position from the group consisting of the position between amino acid residues 294-295, between amino acid residues 302-310, between amino acid residues 362-363, the N-terminal and the C-terminal; and wherein said peptide consists of at least 6 amino acid residues of the amino acid sequence of SEQ ID NO: 4.

56. (new) An isolated and genetically modified hybrid glucose-6-phosphate dehydrogenase (G6PDH) comprising the amino acid sequence of SEQ ID NO: 6 wherein the hybrid G6PDH is modified to have a peptide inserted into at least one specific position from the group consisting of the position between amino acid residues 294-295, between amino acid residues 302-310, between amino acid residues 362-363, the N-terminal and the C-terminal; and wherein said peptide consists of at least 6 amino acid residues of the amino acid sequence of SEQ ID NO: 5.

57. (new) An isolated and genetically modified hybrid glucose-6-phosphate dehydrogenase (G6PDH) comprising the amino acid sequence of SEQ ID NO: 6 wherein the hybrid G6PDH is modified to have a peptide inserted into at least one specific position from the group consisting of the position between amino acid residues 294-295, between amino acid residues 302-310, between amino acid residues 362-363, the N-terminal and the C-terminal; and wherein said peptide consists of at least 6 amino acid residues of the amino acid sequence of SEQ ID NO: 46.

58. (new) An isolated and genetically modified hybrid glucose-6-phosphate dehydrogenase (G6PDH) comprising the amino acid sequence of SEQ ID NO: 6 wherein the hybrid G6PDH is modified to have a peptide inserted into at least one specific position from the group consisting of the position between amino acid residues 294-295, between amino acid residues 302-310, between amino acid residues 362-363, the N-terminal and the C-terminal; and wherein said peptide consists of at least 6 amino acid residues of the amino acid sequence of SEQ ID NO: 50.